

Questions?

- Project #1 due today
- Project #2 out today
- Grad project due in a week
- Remember: mid-term on 10/29

User centered design and prototyping

- Two approaches to design
 - System centered design
 - *Design what is easy to implement or cool*
 - *Limiting yourself to a specific platform/toolkit*
 - *Limiting yourself to using tools you know*
 - User centered design
 - *Users capabilities*
 - *Users tasks*
 - *Users needs*



User centered design

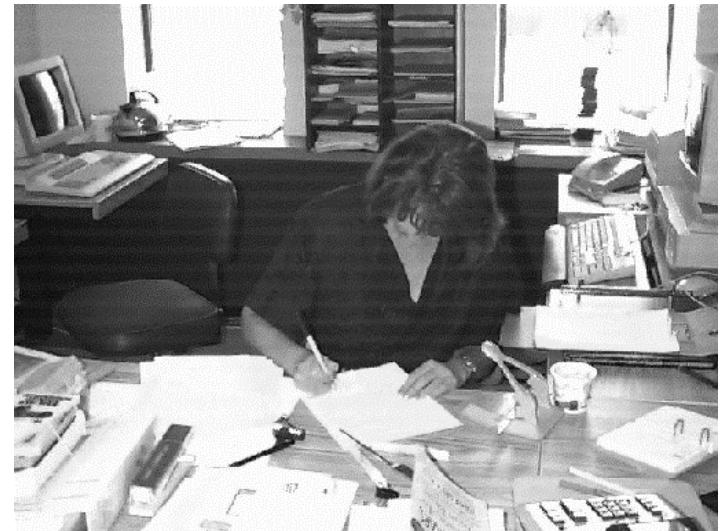
- Goal: satisfied customers
- Collaboration with users
 - Users primary source of information
 - *Expert in the subject matter*
 - Designer assist users in establishing their needs
 - *Designer must be honest!*
 - On going collaboration between designers and users
 - *Users*
 - *Testers*
 - *Informants*
 - *Design partners*

User centered design: difficulties

- Where to find users?
 - The product does not exist yet!
 - User might be fearful
- Several Masters
 - Real users
 - Their representatives
 - Who will buy the product
- Users might not know how to formulate their needs
 - Users are not designers
- Designer might influence users
 - Pushing a cool idea
 - Pushing what you have been working on for the last month

How to extract users knowledge and needs?

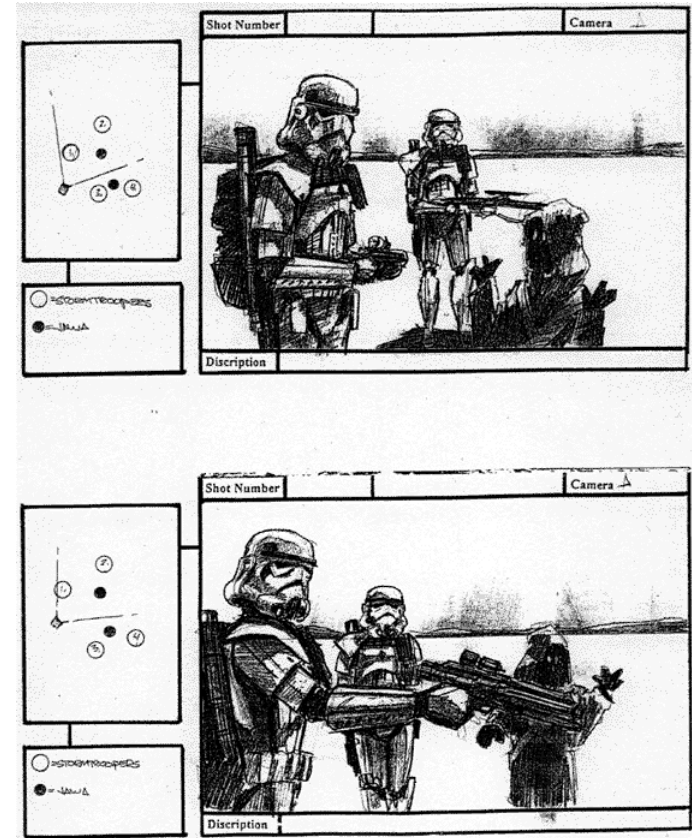
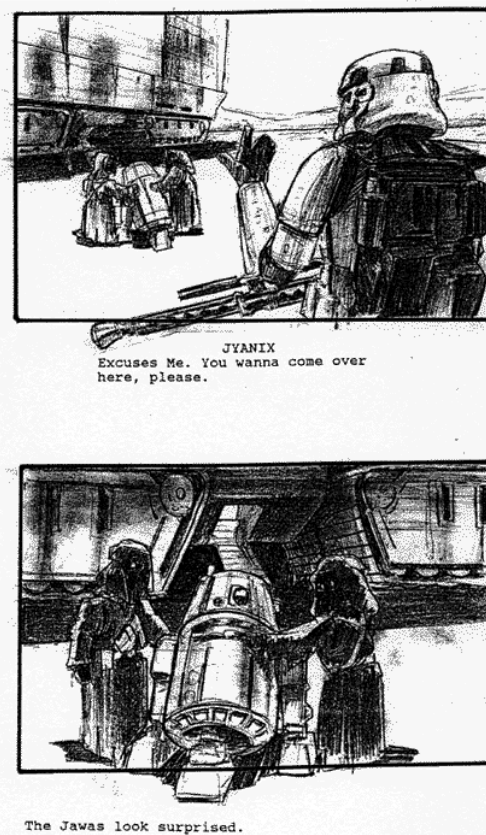
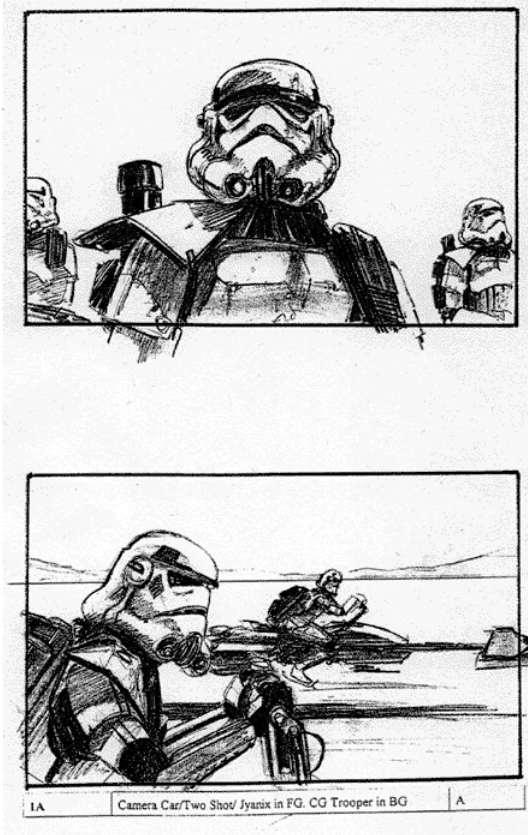
- Ethnographic approach
 - Interviews
 - *Preferably where users will perform the task*
 - *Phone*
 - Diary
 - *Paper, annotated photographs, video*
 - *Debrief with them*
 - Direct observations
 - *Paper, photographs, Video*
 - *Debrief with them*
 - Logging
 - *Google, Amazon*



How to explain your design to users?

- Verbal description
 - Often difficult to do
- Storyboarding
- Low fidelity prototypes
- Wizard of Oz
- Medium fidelity prototypes

Storyboard example (Troops)



See <http://www.theforce.net/theater/shortfilms/troops/>

Storyboarding a computer telephone

Computer Telephone

Last Name:
First Name:
Phone:

Place Call Help

Help →

Help Screen

You can enter either the person's name or their number. Then hit the place button to call them

Return

Call by name →

Computer Telephone

Last Name: Greenberg
First Name:
Phone:

Place Call Help

Establishing connection →

Computer Telephone

Dialling....

Cancel

Place Call Help

Call connected →

Computer Telephone

Connected

Hang up

Place Call Help

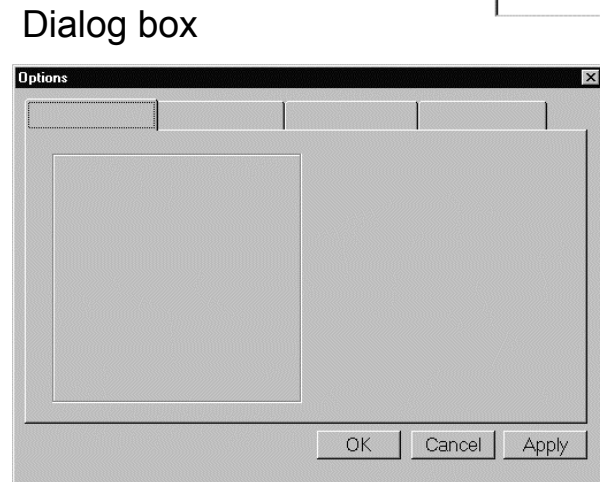
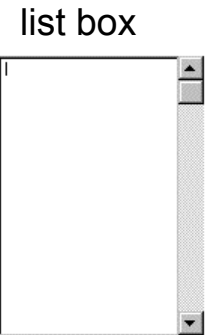
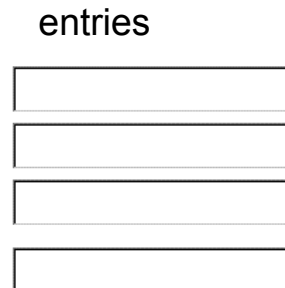
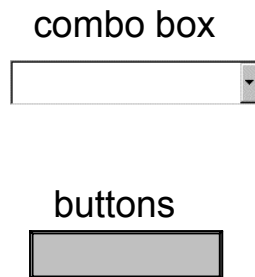
Call completed →

Storyboarding (Summary)

- Storyboarding
 - Series of key frames depicting key steps in the process
 - Check your understanding of the process users are going through
 - *Observe user reaction*
 - *Debrief users*
 - Good reference point during the design process

Low fidelity prototypes

- Paper/plastic based
 - Using sketches, foamcore, transparency, and PICTIVE*
- Mode of operation
 - User use the interface
 - Someone play the computer
 - Designer observe users reactions
 - *Video camera might be helpful*



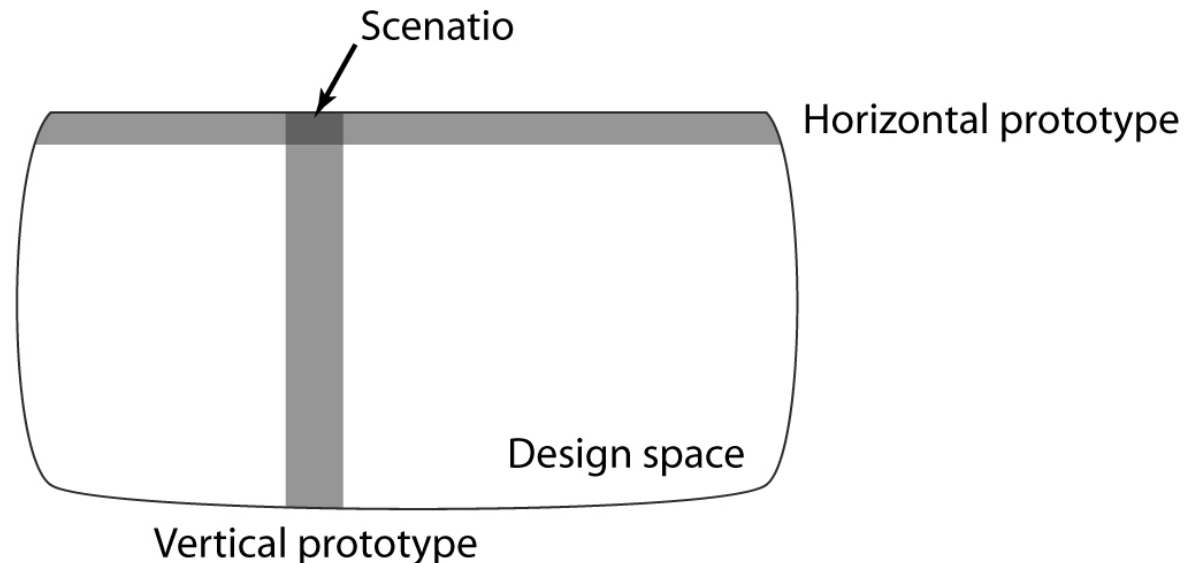
*Plastic Interface for Collaborative Technology Initiatives through Video Exploration” Muller, CHI 91

Low fidelity prototypes (summary)

- Inexpensive
- High level feedback about the dynamic of the interface
- Trigger users reactions
 - Debrief users
- Might be inaccurate

Medium fidelity prototypes

- Using prototyping tools (Flash, Director, JavaScript,...)
 - Horizontal prototype: the full interface without the functionality
 - *Is the command structure OK?*
 - Vertical prototype: Provide answer about a specific question
 - *Is dialog box design A faster than dialog box design B?*
 - Scenario



Wizard of Oz

- Testing a system that does not exist
 - Voice recognition, face identification, handwriting recognition
- Mode of operation
 - Users use with the interface
 - A wizard (sometime hidden) responds to users behavior
 - *Follow an algorithm*
 - *Reproduce the expected capability of the system*

Medium fidelity prototypes (Summary)

- Time consuming and more expensive
- Be careful about user expectations
 - Developer might resist change
 - Management might think it is real
- Do not get distracted by too small a detail
 - Color, font,...

High fidelity prototypes

- Piecewise prototype
 - Horizontal, vertical, scenario
 - Controlled setting
- Alpha and Beta releases
 - Small scale distribution
 - *Quicken*
- Final product?
 - Monitor help line
 - Monitor sell rep.
- Costly
 - Problem can be deeply rooted in the software architecture